AMENDMENTS TO THE CLAIMS

Claims 1-28 **(Cancelled)**

29. **(New)** A process for producing a polyolefin having a multimodal molecular weight distribution, which process comprises:

(a) polymerizing a first olefin monomer in the presence of a bis-indenyl metallocene catalyst, to form a first multimodal polyolefin component, said bis-indenyl metallocene catalyst being represented by formula (I):

$$(Ind)_2R''MQ_p \qquad (I)$$

wherein:

each Ind is the same or different and is a substituted or unsubstituted indenyl group, or a substituted or unsubstituted tetrahydroindenyl group; R" is a structural bridge imparting stereorigidity to the component; M is a metal atom from group IVB, VB or VIB of the periodic table; p is the valence of M minus 2; and each Q is a hydrocarbon having from 1-20 carbon atoms or is a halogen; and

(b) polymerizing a second olefin monomer in the presence of a second metallocene catalyst to form a second polyolefin component, said second metallocene catalyst being represented by formula (II):

$$R''(CpR^1R^2R^3)(Cp'R_n')MQ_2 \qquad (II)$$

wherein:

Cp is a substituted or unsubstituted cyclopentadienyl ring; Cp' is a substituted or unsubstituted fluorenyl group; R" is a structural bridge imparting stereorigidity to the component; R^1 is a substituent on the cyclopentadienyl ring which is distal to the bridge, which distal substituent comprises a hydrogen or a bulky group of the formula XR^*_3 in which X is chosen from Group

IVA, and each R* is the same or different and chosen from hydrogen or hydrocarbyl of from 1-20 carbon atoms; R^2 is a substituent on the cyclopentadienyl ring which is proximal to the bridge and positioned *non-vicinal* to the distal substituent and is a hydrogen or is of the formula $YR\#_3$ in which Y is chosen from group IVA, and each R# is the same or different and chosen from hydrogen or hydrocarbyl of 1-7 carbon atoms, R^3 is a substituent on the cyclopentadienyl ring which is proximal to the bridge and is a hydrogen or is of the formula $ZR\$_3$, in which Z is chosen from group IVA, and each R$ is the same or different and chosen from hydrogen or hydrocarbyl of 1-7 carbon atoms; n is an integer of from 0-8; each R'_n is the same or different and is a group AR"'3 in which A is chosen from group IVA and each R" is the same or different and chose from hydrogen or a hydrocarbyl having 1-20 carbon atoms; wherein X, Y, Z and A are independently selected from carbon and silicon; M is a Group IVB transition metal or vanadium; and each Q is hydrocarbyl having 1-20 carbon atoms or is a halogen; and

wherein the molecular weight distribution of the first polyolefin component overlaps with the molecular weight distribution of the second polyolefin component.

30. **(New)** The process of claim 29 wherein the first polyolefin component comprises a bimodal polyolefin.

31. **(New)** The process of claim 30 wherein the second polyolefin component comprises a monomodal polyolefin.

32. **(New)** The process of claim 29 wherein the indenyl groups of the catalyst are unsubstituted or are substituted at the at least one of the 2, 2', 4 and/or 4' positions.

33. **(New)** The process of claim 32 wherein the indenyl groups are symmetrically substituted.

34. **(New)** The process of claim 32 wherein the indenyl groups of the catalyst are substituted by a bulky group at at least one of the 4 and 4' positions.

35. **(New)** The process of claim 34 wherein said bulky group is selected from the group consisting of a methyl group, an isopropyl group, a tertiary butyl group, a trimethylsilyl group, and a phenyl group.

36. **(New)** The process of claim 35 wherein said bulky group is a phenyl group which forms a bis-indenyl group with the indenyl group to which it is attached.

37. **(New)** The process of claim 34 wherein the indenyl groups are substituted at at least one of the 2 and 2' positions by a methyl group.

38. **(New)** The process of claim 32 wherein the bridging group R" in the metallocene of formula (I) is a $C_1 - C_4$ alkylene group.

39. **(New)** The process of claim 38 wherein said bridging group comprises a substituted or unsubstituted ethylene group.

40. **(New)** The process of claim 29 wherein in the cyclopentadienyl-fluorenyl group, R^1 is selected from the group consisting of $C(CH_3)_3$, $C(CH_3)_2Ph$, CPh_3 and $Si(CH_3)_3$.

41. **(New)** The process of claim 40 wherein R^2 is CH_3.

42. **(New)** The process of claim 41 wherein R^3 is CH_3.

43. **(New)** The process of claim 29 wherein n is 2.

44. **(New)** The process of claim 43 wherein the fluorenyl group is substituted at the 3 position and the 6 position.

45. **(New)** The process of claim 44 wherein each R' is selected from the group consisting of $C(CH_3)_3$ and $Si(CH_3)_3$.

46. **(New)** The process of claim 45 wherein the R' groups are the same.

47. **(New)** The process of claim 40 wherein R" in formula (II) is selected from alkylidene having 1-20 carbon atoms, a dialkyl germanium, silicon or siloxane, an alkyl phosphine and an amine.

48. **(New)** The process of claim 47 wherein R" in formula (II) is isopropylidene or dimethylsilanediyl.

49. **(New)** The process of claim 44 wherein the fluorenyl ring is unsubstituted at both positions 4 and 5.

50. **(New)** The process of claim 29 wherein M is zirconium or titanium.

51. **(New)** The process of claim 50 wherein Q is a halogen.

52. **(New)** The process of claim 29 wherein the steps (a) and (b) are carried out in the same reaction zone.

53. **(New)** The process of claim 1 wherein the polymerization of paragraphs (a) and (b) are carried out in at least two series-connected reaction zones.

54. **(New)** A multisite catalyst system for producing a polyolefin having a multimodal molecular weight distribution, which catalyst system comprises two or more catalyst components immobilized on a support, wherein the catalyst components comprise:

(a) a first catalyst component comprising a bis-indenyl metallocene catalyst, to form a first multimodal polyolefin component represented by formula (I):

$$(Ind)_2R''MQ_p \qquad (I)$$

wherein:

each Ind is the same or different and is a substituted or unsubstituted indenyl group, or a substituted or unsubstituted tetrahydroindenyl group; R" is a structural bridge imparting stereorigidity to the component; M is a metal atom from group IVB, VB or VIB of the periodic table; p is the valence of M minus 2; and each Q is a hydrocarbon having from 1-20 carbon atoms or is a halogen; and

(b) a second catalyst component represented by formula (II):

$$R''(CpR^1R^2R^3)(Cp'R_n')MQ_2 \qquad (II)$$

wherein:

Cp is a substituted or unsubstituted cyclopentadienyl ring; Cp' is a substituted or unsubstituted fluorenyl group; R" is a structural bridge imparting stereorigidity to the component; R^1 is a substituent on the cyclopentadienyl ring which is distal to the bridge, which distal substituent comprises a hydrogen or a bulky group of the formula XR^*_3 in which X is chosen from Group IVA, and each R* is the same or different and chosen from hydrogen or hydrocarbyl of from 1-20 carbon atoms; R^2 is a substituent on the cyclopentadienyl ring which is proximal to the bridge and positioned *non-vicinal* to the distal substituent and is a hydrogen or is of the formula $YR\#_3$ in which Y is chosen from group IVA, and each R# is the same or different and chosen from

hydrogen or hydrocarbyl of 1-7 carbon atoms, R^3 is a substituent on the cyclopentadienyl ring which is proximal to the bridge and is a hydrogen or is of the formula $ZR\$_3$, in which Z is chosen from group IVA, and each R$ is the same or different and chosen from hydrogen or hydrocarbyl of 1-7 carbon atoms; n is an integer of from 0-8; each R'_n is the same or different and is a group AR"'3 in which A is chosen from group IVA and each R" is the same or different and chose from hydrogen or a hydrocarbyl having 1-20 carbon atoms; wherein X, Y, Z and A are independently selected from carbon and silicon; M is a Group IVB transition metal or vanadium; and each Q is hydrocarbyl having 1-20 carbon atoms or is a halogen.